LOCKHEED AIRCRAFT CORPORATION
MISSILE SYSTEMS DIVISION

DATE	MANUFACTURING TEST PROCEDURE	MTP NO.
10-15-58		M700502
PAGE 1 OF 17	PART NAME: VOLTAGE CONTROLLED OSCILLATOR - VCO-3A	PART NO.
M.T. R. Sorenson	SPECIFICATION: ATS 1700502 PROJECT: ATS 1700519 XN	1039813 thru 28
CHECKED R Thompson 2-24-9	DEPT. 57-22 MODEL 6-204-9 up SERIAL NO.	
M.T.E. CHG. L Thayer	SPEC. REVISION	MTP REVISION
ENG. R Holseth 3-2-59		

REV.	DEPT.	MODEL	SERIAL NO.	PARAGRAPH NO.	DATE
A	54-22	XN	6-204-9 up	Complete Revision	12-31-8
A	57-28	XN	6-204-9 up	Rev.	1-14-9
A	57-22	XN	6-204-9 up	6:7.6	3-2-9

CATEGORY OF TEST

NOTE: Sections 1 thru 6 are to be considered preliminary adjustments and do not require inspection surveillance.

1. TEST EQUIPMENT:

1.1 All equipment included in oscillator set-up station.

1.2 Test Harness Q1081T.

2. POWER SUPPLIES:

2.1 Set plus 28 volt supply to + 28.0 ± .1 volt DC.

2.2 Set negative 28 volt supply to -28.0 ± .1 volt DC.

2.3 Plug in oscillator.

2.4 + 28 volt current drawn by oscillator shall not exceed 12.0 milliamperes.

2.5 -28 volt current drawn by oscillator shall not exceed 4.5 (4.0) milliamperes.

3. FILTER CHECK:

3.1 The filter shall meet the following specifications: Unsolder R29.

3.1.1 Maximum pass-band amplitude variation: 1.5 db max.

3.1.2 Upper and low adjacent band edge attenuation: 10 db min. Channel 6 and above; 8 db in channel 5 and below.

3.1.3 Second and third harmonic attenuation: 25 db min.

MANUFACTURING TEST PROCEDURE
VOLTAGE CONTROLLED OSCILLATOR VCO-3A

3. FILTER CHECK: (Cont'd)

3.2 The filter test circuit is shown in Figure 1.1 Refer to the filter frequency table. (Table II) for the frequencies used to check the filters at different channels.

3.3 Set the frequency of the signal generator to the band center as shown on the filter frequency table (Table II). Adjust the output level of the signal generator so the VTVM reads 0.775V (0 db).

3.4 Vary the signal generator frequency from the low band edge frequency to the high band edge frequency. If the amplitude variation over the band is more than 1.5 db total, as indicated on the meter db scale, reject the unit. Caution - check output of signal generator for flatness.

3.5 Set the signal generator to the upper and lower adjacent band edges. If the response is not 10 db down from center frequency value channel 6 and above or 8 db down from center frequency value channel 3, 4 and 5, reject units.

3.6 Set the signal generator to the second and third harmonics of the center frequency. If the responses are not 25 db or more down from the response at center frequency (i.e., the voltage output must be less than 0.0435V), reject the unit.

4. SETTING FREQUENCY OF THE BLOCKING OSCILLATOR:

4.1 Components C1, C6, C13, C4, C20, C10, C11 and R21 should be soldered lightly in place. The values of these components are to be taken from Table III. If the frequency is not within the specified range, the parallel sum of C10 and C11 will have to be changed. Decrease the sum of C10 and C11 to increase the blocking oscillator free running frequency and increase the sum of C10 and C11 to decrease the blocking oscillator frequency. A finer control of the blocking oscillator frequency may be had by varying R21. However, the value of R21 should be kept within 18K to 22K. These figures are starting values only. Oscillator frequency may be varied for better operation. Make measurement at collector of Q5.

NOTE: Be sure to measure the blocking osc. freq. at the collector of Q5.

5. INITIAL ADJUSTMENTS AND CHECKS:

5.1 Lightly solder in place a 50K zero coefficient resistor (Dalohm WA-13, or WWR-23) for the series resistance made up by R8 and R9. This resistor is to connect to the red lead eyelet of R7 and to the R9 eyelet which is nearest to Q1.

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VOLTAGE CONTROLLED OSCILLATOR - VCO-3A

5. INITIAL ADJUSTMENTS AND CHECKS: (Cont'd)

PAGE 14

5.2 The following adjustments should be made using a setup as shown in Fig. 3 with unit plugged into setup station without cable.

5.3 With zero volt stimulus input, adjust R4 (20K) so that the voltage at test point is ± 7.0 VDC. The frequency of the oscillator should now be in the band as specified in the band-frequency Table IV.

5.4 Place the probe of a high frequency oscilloscope at the collector of Q1, and verify that C4 and C20 are being discharged to the R-level set by CR4 (approximately-2.4V) as ~~Figure 4, Table 1~~ IN SKETCH, BOTTOM OF PAGE 8.

If the capacitors are not being completely discharged, decrease R10 until they are completely discharged, but do not use less than 100 ohms for R10. If C4 and C20 are still not being completely discharged, assign unit to re-work group for replacement of Q1.

5.5 Adjust R7 (1K) for correct center frequency. If the correct center frequency cannot be obtained by varying R7, decrease the sum of C4 and C20 to increase the frequency. Increase the sum to decrease frequency. R7 should be near the center of i[illegible].

5.6 With -0.75 VDC stimulus applied, adjust R13 (25K) for the desired high band-edge frequency shown in Table IV. Apply +0.75 VDC stimulus and check the low band edge frequency against the value in Table IV.

5.7 Vary B+ ± 0.5V. Record the center frequency and band edge frequencies. Plus B current should also be recorded for each B+ setting. The center frequency and the band edge frequencies should not vary more than ±1% of bandwidth. Vary B+ ± 0.5V. Record the center frequency and band edge frequencies. The center frequency and the band edge frequencies should not vary more than ± 1% of bandwidth. Minus B current should also be recorded for each -B setting. If in either case the change of frequency is excessive assign to rework. At rework, check the two voltage regulator circuits made up by CR3 and R3, and CR4 and R6.

5.8 Adjust R28 (10K) so that the VTVM reads * volts output with zero volt stimulus. Make sure that R28 is at least one turn from its maximum setting. If the desired output cannot be obtained, assign to rework. At rework, verify that there is a square wave output on the collector of Q5. If there is not a square wave output, change the bias on Q5 by varying R25. Also it may be necessary to increase the coupling by decreasing R24 (to a minimum of 2K). IT IS ONLY NECESSARY TO CHECK THE WAVE FORM AT COLLECTOR OF Q5 WHEN THE OUTPUT VOLTAGE IS LOW, OR WHEN THE OUTPUT DISTORTION (SEE 5.9) IS VERY HIGH.

CAUTION: Plug oscillator into panel for output measurements.

*NOTE: 0.250 volts channel 13 thru 15.
0.36 volts channel 16 and above (including A & E)
0.100 volts channel 3 thru 12.

MANUFACTURING TEST PROCEDURE
VOLTAGE CONTROLLED OSCILLATOR - VCO-3A

5. INITIAL ADJUSTMENTS AND CHECKS: (Cont'd)

5.9 Measure the total harmonic distortion at the center frequency. The total harmonic distortion should be less than 1.5%. If distortion is high add C21, shunting R25; the value shall be between 5 to 1000 MMFDS. Use type CY10 - CY15 Corning Glass or DM 15 capacitors.

5.10 Ground the tell-tale terminal R and measure RMS output level and percentage of distortion at center frequency. Output level should fall at least 25%, but not more than 35%. Percentage of distortion should not exceed 1.5% at center frequency.

6. TEMPERATURE COMPENSATION: Use cable from station panel to oven.

6.1 It is recommended that all oscillators be temperatured cycled three times without B+ before starting this test. Use a setup as shown in Figure #3. (PAGE 14) A half hour warm-up of the VCO-3A is recommended before the heat run. At room temperature apply + 0.75V, 0 V and -0.75V stimulus. Measure and record the lower band-edge, the center and high band edge frequencies. Also record the output voltage at center frequency.

6.2 Place the oscillator into an oven which has been preheated to 65°C (149°F). When the oscillator has stablized measure and record the same quantities as in 6.1 (20 minutes min.)

6.3 (Deleted)

6.4 Remove the oscillator from the oven and after it has stabilized at room temperature, measure and record the same quantities as in 6.1. The frequencies should return to within 1% of bandwidth as their initial value. If not, repeat 6.2 and 6.3. If oscillator is still out of tolerance after 2nd heat run, assign unit to rework.

6.5 If the total change of the lower band edge frequency, the center frequency or the upper band edge frequency is more than ± 2% of bandwidth the oscillator will have to be compensated, output as measured at end of cable shall not change by more than 10%.

Since normally all compensation is done by various resistors, examples of the different types to be used are given below.

MANUFACTURING TEST PROCEDURE
VOLTAGE CONTROLLED OSCILLATOR - VCO-3A

6. TEMPERATURE COMPENSATION: (Cont'd)

6.5.1 Temperature Characteristics	Resistor
6.5.1.1 Zero coefficient	Dalohm WWA-13, [redacted]
6.5.1.2 Positive coefficient	Ultronics Type 105R + 0.4% per °C
6.5.1.3 Negative coefficient	Dalohm 1/8W composition film

The following table will be useful in compensating the VCO-3A.

6.5.2 Drift Characteristics	Probable Cure
6.5.2.1 Constant rise of frequency with temperature, and the total variation of frequency being less than 6% of BW	Replace 50K zero coefficient by a small positive coefficient R8 and a zero coefficient R9, keeping the sum equal to 50K.
6.5.2.2 Frequency at 65° less than the frequency at 25° C, but the frequency variation over the temp. range is less than 6% of bandwidth.	Replace 50K R9 Zero coefficient by negative coefficient R8 and zero coefficient R9, keeping the sum equal to 50K.

See table 6, page 17 for approximate values

The following corrective measures should be made by the rework groups:

6.5.2.3 Increase of frequency with temperature, and the total variation of frequency being more than 6% of BW	1. Replace CR1. 2. Decrease blocking osc.freq. 3. The voltage on CR3 should not vary more than 0.2V over the temperature range.
6.5.2.4 Center frequency at 65° more than 6% of bandwidth below the frequency of 25° C.	Replace Q1 by another transistor selected to Q1 specifications.
6.5.2.5 Sensitivity changes on low frequency side.	Decrease the blocking oscillator free- running frequency.
6.5.2.6 The output voltage decreases by more than 10%.	Change L1 and L2, retune filter.

MANUFACTURING TEST PROCEDURE

VOLTAGE CONTROLLED OSCILLATOR - VCO-3A

7. LINEARITY: FINAL CHECKS AND ADJUSTMENTS AFTER PART INSTALLATION AND POTTING.
CAUTION: Plug oscillator into panel for these measurements. The inspection department must maintain surveillance of all tests in this section.

7.1 Set up oscillator per Figure 3.

7.2 Set plus 28 volt supply to +28.0 ± .1 volt DC.

7.3 Set negative 28 volt supply to -28.0 ± .1 volt DC.

7.4 Plug in oscillator.

7.5 + 28 volt current drawn by oscillator shall not exceed 12.0 milliamperes.

7.6 -28 volt current drawn by oscillator shall not exceed 4.0 milliamperes, with tell-tale grounded.

7.7 Apply ± 0.75 VDC stimulus in 11 equal steps.

7.8 Record output frequency for each step. Use 10 sec gate on counter AT 3 KC and below. (Channels 3 thru 8).

7.9 Subtract high and low band edge frequency, as measured in 7.7

7.9.1 Divide this figure by 10.

7.9.2 Subtract each reading from the next highest reading.

7.9.3 The values in 7.9.2 should be the value in para. 7.9.1 ± the 1% tolerance in Table I.

7.10 Check the band edge and center frequencies are still in tolerance as indicated in Table V.

8. OUTPUT: At ambient temperature, record the following:
CAUTION: Plug oscillator into panel for output measurements.

8.1 Adjust R28 so VTVM reads .10 volts rms, channel 3 thru 12; 0.25 volts rms, channel 13 thru 15; 0.36 volts rms, channel 16 and above (including A & F). Tolerance on these voltages are -0 +3%.

8.2 Center frequency, RMS Output Voltage, % distortion. (E_{in} = 0V)

8.3 Lower band-edge frequency, RMS Output Voltage, (E_{in} = +0.75V)

8.4 Upper band-edge frequency, RMS Output Voltage, (E_{in} = -0.75V)

8.5 The output voltage should not vary over the bandwidth more than 2 db. The percentage of distortion in the output at center frequency should not exceed 1.5.

MANUFACTURING TEST PROCEDURE

VOLTAGE CONTROLLED OSCILLATOR -VCO-3A

8. OUTPUT: (Cont'd)

8.6 Ground the tell-tale terminal R and measure RMS output level and percentage of distortion at center frequency. Output level should fall at least 25%, but not more than 35%. Percentage of distortion should not exceed 1.5%.

9. Temperature Test:

9.1 Plug oscillator into test cable from station panel to oven.

9.2 When oscillator has stabilized record the center, upper and lower band edge frequency. Measure center frequency output voltage.

10. TEMPERATURE TEST 65° C: Use cable from station panel to oven.

10.1 Place the VCO-3A into an oven pre-heated to 65°C (149°F). When the oscillator has stabilized, record the center, upper and lower band-edge frequencies. The frequencies measured should not vary more than ± 3% of bandwidth from that recorded at ambient temperature. See Table I.

Para. 11 (Deleted)

12. FINAL SENSITIVITY ADJUSTMENT, if required and called out by shop order. This section will not be used unless called out on shop order.

12.1 Plug oscillator into test panel.

12.2 Any 1.5 volt peak to peak input range within the limits of ± 2.0 volts is acceptable.

12.3 The output frequency shall be at the center frequency with the input at the center of the desired input range, adjust R4. See Table V.

12.4 The output frequency shall deviate within the lower band limits per Table V when most positive input of the desired input range is applied.

12.5 The output frequency shall deviate within the upper band limits per Table V when most negative input of the desired input range is applied.

MANUFACTURING TEST PROCEDURE

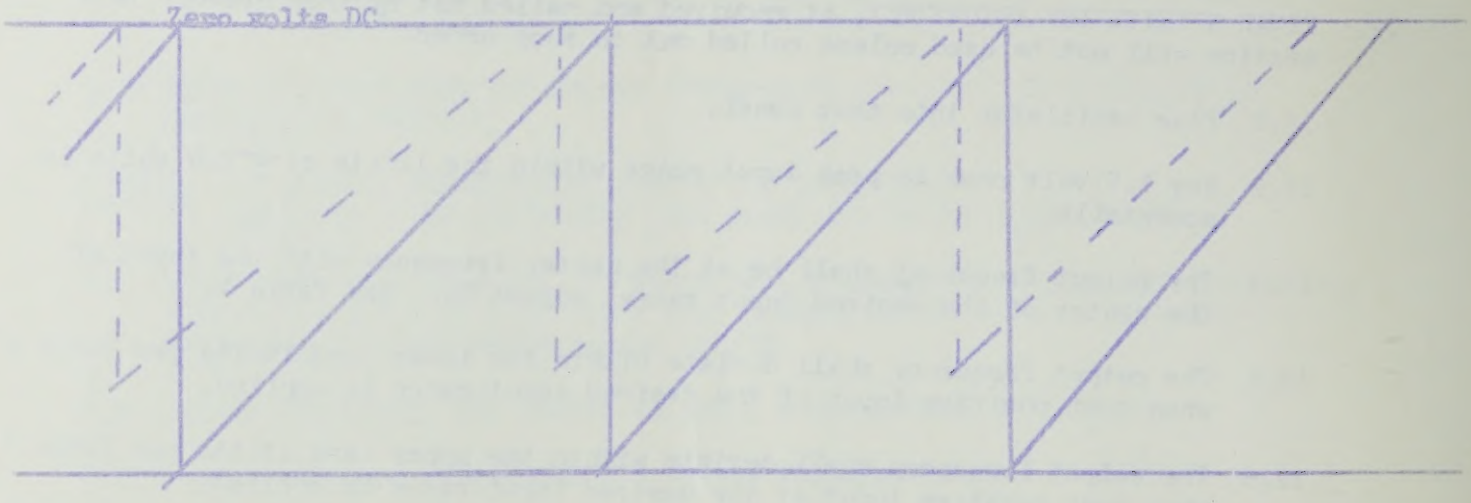
VOLTAGE CONTROLLED OSCILLATOR - VDC-3A

TABLE 1

CHANNEL	TOLERANCES PLUS OR MINUS			
	1%	1.5%	2%	3%
1	.6	0.9	1.2	1.8
2	.88	1.2	1.6	2.4
3	1.1	1.6	2.2	3.3
4	1.4	2.1	2.8	4.2
5	1.9	2.9	3.8	5.8
6	2.6	3.9	4.2	7.8
7	3.5	4.3	7.0	10.5
8	4.5	6.8	9.0	13.5
9	6.0	9	12	18
10	8.0	12	16	24
11	11.0	17	22	34
12	16.0	24	32	48
13	22.0	33	44	66
14	33.0	50	66	99
15	45.0	68	90	136
16	60.0	90	120	180
17	79.0	119	158	238
18	105.0	158	210	316
A	66.0	99	132	188
E	210.0	315	420	630

FIGURE 1 TABLE E

SKETCH OF WAVEFORM



Approximately -24 V DC

Dashed line - C4 and C20 NOT completely discharged.

*This voltage level set by CR4
Solid line - C4 and C20 completely discharged

MANUFACTURING TEST PROCEDURE
VOLTAGE CONTROLLED OSCILLATOR

TABLE II

CH	CENTER FREQUENCIES	BAND EDGE FREQUENCIES		ADJ BAND EDGE FREQUENCIES		2ND HARMONIC FREQUENCIES	3rd HARMONIC FREQ.
	0-DB	1.5 DB MAX VARIATION OVER THE BAND		-10 DB OR * LESS THAN 0.245 V .RMS		-25 DB OR LESS THAN .0435 V.RMS	-25 DB OR LESS THAN .0435V.RMS
	fo	LOW	HIGH	LOW	HIGH	2. fo	3.fo
3	730	675	785	602	888	1460	2190
4	960	888	1032	785	1202	1920	2880
5	1300	1202	1398	1032	1572	2600	3900
6	1700	1572	1828	1398	2127	3400	5100
7	2300	2127	2473	1828	2775	4600	6900
8	3000	2775	3225	2473	3607	6000	9000
9	3900	3607	4193	3225	4995	7800	11700
10	5400	4995	5805	4193	6799	10800	16200
11	7350	6799	7901	5805	9712	14700	22050
12	10500	9712	11288	7901	13412	21000	31500
13	14500	13412	15588	11288	20350	29000	43500
14	22000	20350	23650	15588	27750	44000	66000
15	30000	27750	32250	23650	37000	60000	90000
16	40000	37000	43000	32250	48550	80000	120000
17	52500	48500	56450	43000	64750	105000	157500
18	70000	64750	75250	56450	90000	140000	210000
E	70000	59500	80500	43000	97000	140000	210000

*channels 3, 4 and 5 -8 db or less than 0.31 volts

MANUFACTURING TEST PROCEDURE
VOLTAGE CONTROLLED OSCILLATOR

TABLE III

CHANNEL SET COMPONENTS

LAB SET COMPONENTS
SUGGESTED STARTING VALUES

CH NO.	C6	C1	C13	C10	R21	C4	C20	MAXIMUM	MINIMUM
3	.01 ufd (6)	1.5 ufd (6)	0.33 ufd (6)	0.33 ufd (6)	20K	10000 uuf (1)	7500 uuf (1)	650	500
4	.01 ufd (6)	1.5 ufd (6)	0.22 ufd (6)	0.27 ufd (6)	18K	10000 uuf (1)	3600 uuf (1)	850	650
5	.01 ufd (6)	1.5 ufd (6)	0.22 ufd (6)	0.22 ufd (6)	20K	9100 uuf (1)	1000 uuf (4)	1100	900
6	.01 ufd (6)	1.0 ufd (6)	0.1 ufd (6)	0.15 ufd (6)	22K	6800 uuf (1)	470 uuf (5)	1450	1200
7	.01 ufd (6)	1.0 ufd (6)	0.068 ufd (6)	0.10 ufd (6)	18K	4700 uuf (2)	470 uuf)5)	1940	1600
8	.01 ufd (6)	0.68 ufd (6)	0.047 ufd (6)	.082 ufd (6)	22K	3900 uuf (2)	110 uuf (5)	2550	2100
9	.0047 ufd (6)	0.47 ufd (6)	0.047 ufd (6)	.068 ufd (6)	18K	2700 uuf (3)	300 uuf (5)	3350	2700
10	.0047 ufd (6)	0.33 ufd (6)	0.033 ufd (6)	0.047 ufd (6)	18K	1100 uuf (4)	1100 uuf (4)	4600	3750
11	1200 ufd (4)	0.22 ufd (6)	0.027 ufd (6)	.047 ufd (6)	18K	820 uuf (5)	820 uuf (5)	6250	5150
12	1200 ufd (4)	0.22 ufd (6)	0.027 ufd (6)	.022 ufd (6)	22K	820 uuf (5)	240 uuf (5)	8950	7350
13	820 uuf (5)	0.1 ufd (6)	0.014 ufd (6)	.022 ufd (6)	20K	680 uuf (5)		11000	8500
14	820 uuf (5)	0.1 ufd (6)	0.01 ufd (6)	.014 ufd (6)	20K	510 uuf (5)		12300	9500
15	820 uuf (5)	.068 ufd (6)	0.0056 ufd (6)	.012 ufd (6)	20K	360 uuf (5)		15000	11000
16	560 ufd (5)	.068 ufd (6)	0.0056 ufd (6)	.01 ufd (6)	20K	240 uuf (5)		20000	14000
17	560 uuf (5)	.047 ufd (6)	0.0056 ufd (6)	.01 ufd (6)	18K	200 uuf (5)		26250	18350
18	560 uuf (5)	.047 ufd (6)	0.0056 ufd (6)	.01 ufd (6)	20K	120 uuf (5)		35000	24500
E	560 uuf (4)	.047 ufd (6)	0.0056 ufd (6)	.01 ufd (6)	20K	120 uuf (5)		35000	24500

1. Corning Glass Capacitor CY30 300 VDCW
2. " " " CY20 300 VDCW
3. " " " CY20 500 VDCW
4. Corning Glass Capacitor CY 15 300 VDCW
5. El Menco DM 15 or Corning Glass CY15 300 VDC
6. Sprague 150D-35 WVDC

MANUFACTURING TEST PROCEDURE
VOLTAGE CONTROLLED OSCILLATOR
(FOR USE BEFORE POTTING)
TABLE IV

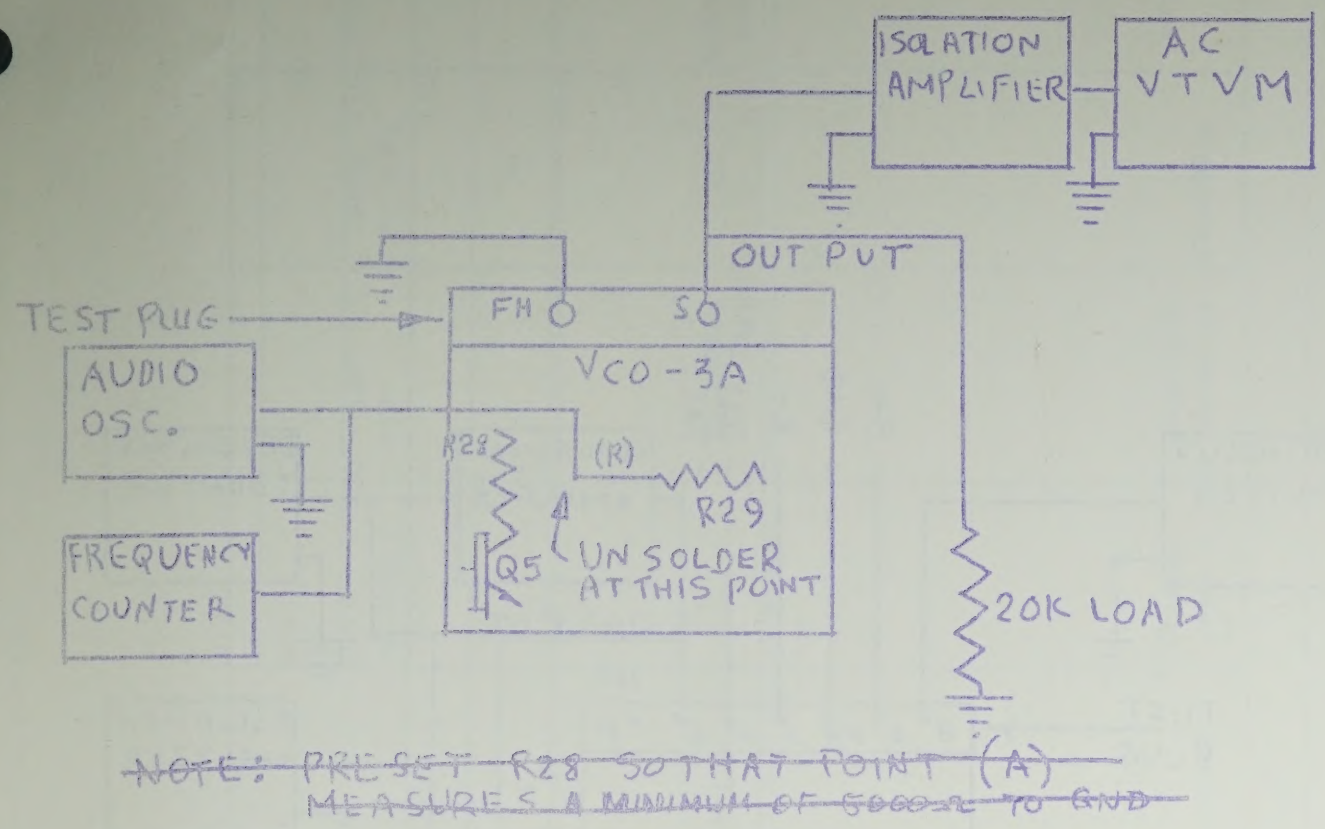
BAND FREQUENCY TABLE

Band Width	LOWER BAND EDGE Min fo-46% BW	LOWER BAND EDGE Mean fo-42% BW	LOWER BAND EDGE Max fo-42% BW	CENTER FREQUENCY Min fo-1% BW	CENTER FREQUENCY Mean (fo)	CENTER FREQUENCY Max fo +1% BW	UPPER BAND EDGE Min fo +42% BW	UPPER BAND EDGE Mean fo +46% BW	Max
110	679.4	681.6	683.8	728.9	730	731.1	776.2	778.4	
144	893.7	896.6	899.5	956.6	960	961.4	1020.5	1023.4	
196	1210	1214	1218	1298	1300	1302	1382	1386	
256	1582	1587	1592	1700	1700	1703	1807	1813	
346	2143	2148	2155	2296	2300	2304	2445	2452	
450	2793	2802	2811	2995	3000	3005	3189	3198	
586	3630	3642	3654	3894	3900	3906	4146	4158	
810	5028	5044	5060	5390	5400	5406	5740	5756	
1102	6843	6865	6887	7330	7350	7369	7823	7835	
1576	9775	9807	9838	10484	10500	10516	11161	11193	
2176	13499	13543	13587	14478	14500	14522	15413	15457	
3300	20482	20548	20614	21967	22000	22033	23386	23452	
4500	27930	28020	28110	29955	30000	30045	31890	31980	
6000	37240	37360	37480	39940	40000	40060	42520	42640	
7700	47814	47968	48122	51021	51100	51179	54078	54232	56130
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	70000	[illegible]	[illegible]	71680	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	70000	[illegible]	[illegible]	[illegible]	

MANUFACTURING TEST PROCEDURE
VOLTAGE CONTROLLED OSCILLATOR
(FOR USE AFTER POTTING)
TABLE V

BAND FREQUENCY TABLE

Band Width	LOWER BAND EDGE Min fo-47% BW	Mean fo-44% BW	Max fo-41% BW	Min. fo-1% BW	CENTER FREQUENCY Mean (fo)	Max. fo +1% BW	UPPER BAND EDGE Min. fo +41% BW	Mean fo +44% BW	Max. fo +47% BW
110	678.3	681.6	684.9	728.9	730	731.1	775.1	778.4	781.6
144	892.3	896.6	900.9	958.6	960	961.4	1019.1	1023.4	1027.7
196	1208.2	1214	1219.8	1298	1300	1302	1380.2	1386	1391.8
256	1579.2	1587	1595.8	1697	1700	1703	1806.2	1813	1819.8
346	2139.7	2148	2156.3	2296	2300	2304	2443.6	2452	2460.3
450	2788.5	2802	2815.5	2995	3000	3005	3184.5	3198	3211.5
586	2624	3642	3660	3894	3900	3906	4140	4158	4176
810	5022	5044	5066	5392	5400	5408	5732	5756	5780
1102	6832	6865	6898	7339	7350	7360	7802	7835	7868
1576	9659	9807	9655	10484	10500	10516	11145	11193	11241
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14500	14522	15391	15457	15523
3300	20442	20548	20647	21967	22000	22033	23353	23452	23551
4500	27885	28020	28155	29955	30000	30045	31845	31980	32115
6000	37140	37360	37540	39940	40000	40060	42460	42640	42820
[illegible]	[illegible]	[illegible]	49261	52423	52500	52579	55739	55976	56213
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	70000	70105	74305	74620	74935
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



~~NOTE: PRE SET R28 SO THAT POINT (A) MEASURES A MINIMUM OF 5000Ω TO GND~~

FIGURE NO. 1

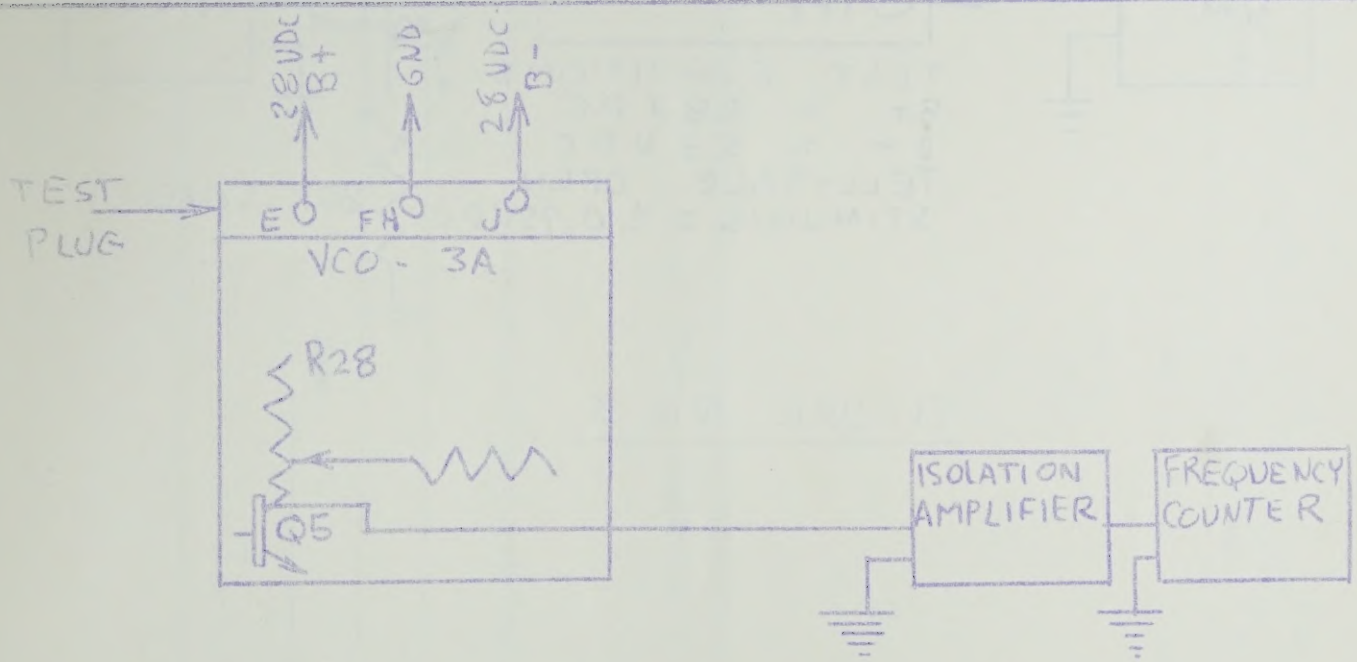


FIGURE NO 2

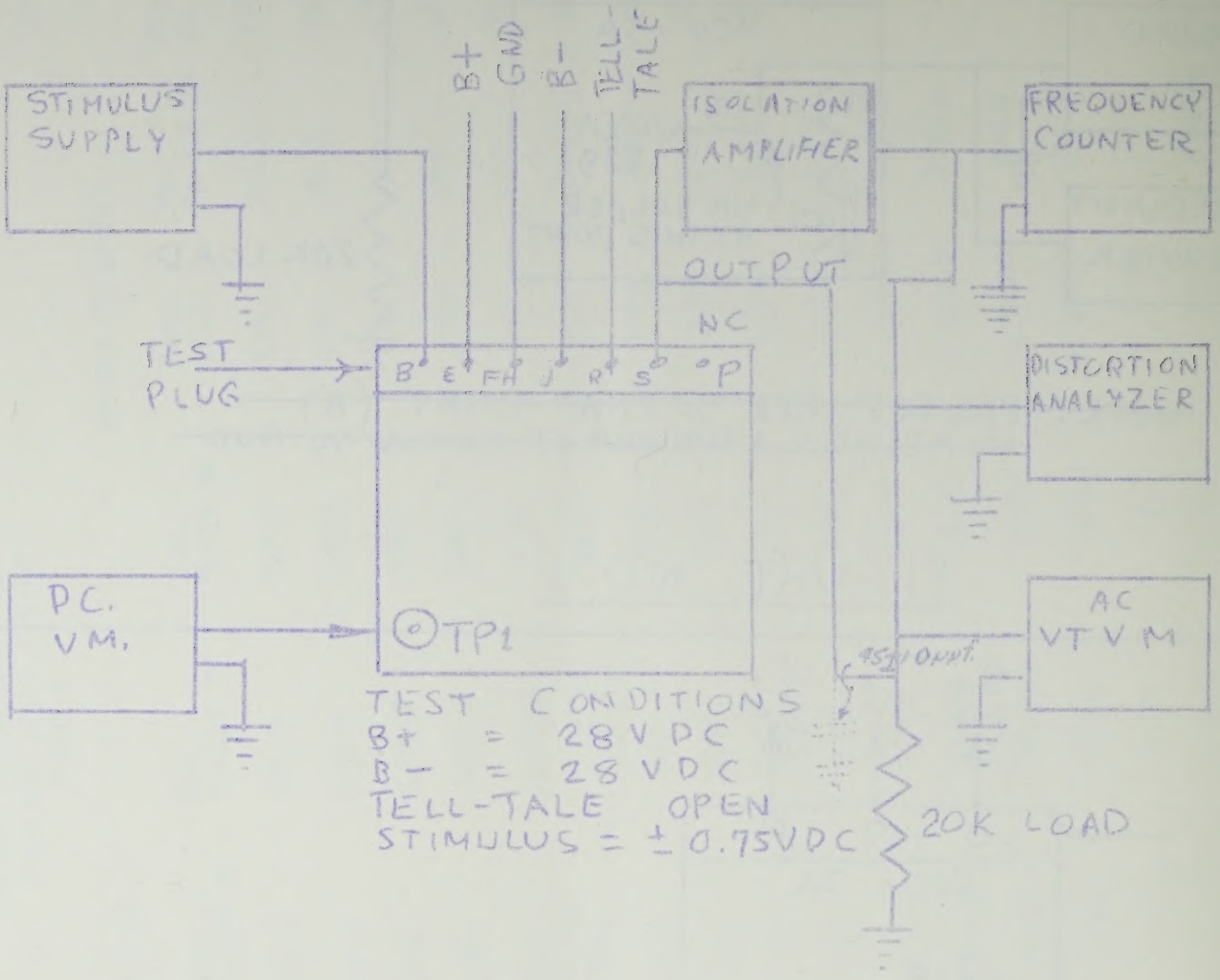

B+
GND
B-
TELL-TALE
STIMULUS SUPPLY
ISOLATION AMPLIFIER
FREQUENCY COUNTER
OUTPUT
NC
TEST PLUG
B
E
FH
J
R
S
P
DISTORTION ANALYZER
P.C. VM.
TP1
AC VTVM
TEST CONDITIONS
B+ = 28 VDC
B- = 28 VDC
TELL-TALE OPEN
STIMULUS = ± 0.75VDC
20K LOAD

FIGURE NO. 3

POST POT TEST CH# S/N B.W.

				65°C	Amb.-65°C		Output Voltage		% Distortion
Input Stimulus	Frequency	Increment of Deviation	Δ f from Average	Frequency	f		AMB	65°C	AMB
							W.O. Cable		
							W. Cable		
Response Evaluation	BW	Avg. Linearity ±		B.W.		B.W.	Time	Inspector	Date
	%	±		%					
Input Stimulus	Tell Tale Open	Tell Tale Short	% Change						

Name

VCO-3A SET UP RECORD

Channel No. _____ S/N _____ B.W.= _____

I. FILTER CHECK

Peak	Band Edges Upper	Band Edges Lower	Upper Adj. Band Edge	Lower Adj. Band Edge	Second Harmonic	Third Harmonic
Frequency						
Response 0.77V/0 db.	Variation db					

Name: _____ Date: _____ Time Spent: _____ Supervisor: _____

II. BLOCKING OSCILLATOR FREQUENCY

C10 _____ R21= _____

C11 _____ Frequency _____

Name: _____ Date: _____ Time Spent: _____ Supervisor: _____

III. CENTER FREQUENCY AND SENSITIVITY ADJUSTMENTS AND REGULATION CHECK

R10 (for complete discharge) =

Component				Frequency					
B+	B-	I+	I-	Freq. -0.75v	Δ f	Freq. 0 v	Δ f	Freq +0.75v	Δ f
		ma	ma						
28.0	28.0								
28.5	28.0								
27.5	28.0								
28.0	27.5								
28.0	28.5								

Name: _____ Date: _____ Time Spent: _____ Supervisor: _____

IV. TEMPERATURE COMPENSATION:

Component				Frequency					
R8	R9	C4	C20	Fin	25° C		65°C	25-65°C	25°C
50K Initial Dalohm WWA-13									
Final									

Name: _____ Date: _____ Time Spent: _____ Supervisor: _____

V. FINAL SET CHECK:

	High	Center	Low
Frequency			
Stirulus			
Output Voltage			
Output Distortion			
Fo Ground Tell Tale			
Dist.-Ground Tell Tale			

Name: _____ Date: _____ Time Spent: _____ Supervisor: _____

Additional Remarks: